

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Savannah River**
Site Summary Level: **Savannah River Site**
Project **SR-ER07 / Program Management**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0057**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose/Scope

The purpose of the Environmental Restoration Division (ERD) Program Management project is to provide management direction and oversight to the six geographic watershed PBS projects. The program management is responsible to ensure that the environment, human health and safety are protected by meeting the prescribed standards derived from federal, state, local, and internal US DOE requirements. The technical support and oversight are provided to the program globally. The Program Management PBS project provides that means to monitor and measure total division program performance.

The following programmatic support has been determined to be essential to the SRS Environmental Restoration Program: Procurement Management, Administration, Quality Assurance, Waste Operation/Treatment Program Development, Engineering Program Management, Environmental Compliance, Program Development, Program Analysis, Controls and Estimating and Safety and Health.

Procurement Management provides direction and guidance in communicating procurement policy and procedure requirements for the development and implementation of procurement and subcontract strategies, plans, and actions to support the SRS-ERD Program.

Administration provides support to the division through training, procedures, report/presentation development, management of administrative needs, records management, document control, and coordination for the division's computing environment and infrastructure.

Quality Assurance provides leadership, direction, and guidance for quality program development, implementation, and verification of ERD compliance with the requirements of the ERD Quality Assurance Program, Site 1Q Manual, DOE Orders and local, state, and federal environmental regulations as applicable.

Waste Treatment manages support for the site initiatives and plans, performs development and maintenance for IDW (Investigation Derived Waste) Plans, Waste minimization activities and waste certification program plans.

Engineering Program Management provides support of programmatic initiatives and process improvements for technical activities such as FFA Bin List, Protocols.

Environmental Compliance ensures ERD activities comply with pertinent environmental laws, regulations, commitments, compliance agreements, and US DOE orders.

Program Development provides strategic program analysis, US DOE customer liaison, performance measurement and improvement, and communication support to ERD departments and project teams.

Program Analysis, Controls and Estimating provides leadership, guidance and direction in program wide planning, scheduling, budgeting, and

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performance monitoring processes.

Safety and Health provides overall administration and guidance in the development and implementation of safety and health policies, programs, systems, and resources.

ERD Program Management will provide support to the process of completing all the known population of ER Release Sites. The remediation processes, surveillance, and maintenance activities will be supported in order to meet regulatory commitments and milestones.

Project Status in FY 2006:

"Just in time" compliance is depicted in "Planning Case." ("Just in time" is defined as adherence to compliance direction in a manner that is "Just in time" to meet regulatory deliverables and avoid fines and penalties.)

ERD Program Management will provide support to the process of completing all the known population of ER Release Sites. The remediation processes, surveillance, and maintenance activities will be supported in order to meet regulatory commitments and milestones.

Post-2006 Project Scope:

"Just in time" compliance is depicted in "Planning Case."

ERD Program Management will continue the support of remedial actions, surveillance, monitoring activities, and programs to ensure health and safety of the public, workers, and environment at Savannah River Site.

Project End State

The Program Management Project will conclude when all ERD projects at Savannah River Site have completed their mission.

Cost Baseline Comments:

- "Just In Time" compliance is depicted in "Planning Case."
- The Cost Baseline reflects fully utilized target funding in outyears (FY02 - FY06) for existing and anticipated regulatory requirements.

Safety & Health Hazards:

The criteria for determining the radiological hazard categories are provided in DOE-STD-1027-92 and the criteria for determining the chemical hazard categorization are provided in WSRC-MS-92-206. Chemical inventory is controlled in accordance with RDP 14.1, Chemical Management Program and Chemicals and Nonradioactive Hazardous Materials Control (U).

Safety & Health Work Performance:

Activities and checkpoints are described by the Integrated Safety Management System Description. The conditions and requirements are clearly established and agreed upon prior to the start of any project, and those requirements are contractually binding upon WSRC. The key elements of the WSRC Integrated Safety Program are to define the scope of work, identify and analyze hazards associated with the work, develop and implement

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hazard controls, perform work within controls, provide feedback on adequacy of controls, and continue to improve safety management. The WSRC Integrated Procedures Management System (IPMS) is the primary mechanism for implementing the objective, principles and functions of the Safety Management System. This system establishes company-level, division-level, and program-specific procedures consistent with organizational roles and ensures a consistent, disciplined site wide approach to safety while performing work. The resource description, costs, and skill mix are defined in the following Sections: Costs D.2.2, Costs D.3, FTEs D.2.5, and FTES D.2.7 of the IPMS. Activities and checkpoints are described by the Integrated Safety Management System Description. The conditions and requirements are clearly established and agreed upon prior to the start of any project, and those requirements are contractually binding upon WSRC. The key elements of the WSRC Integrated Safety Program are to define the scope of work, identify and analyze hazards associated with the work, develop and implement hazard controls, perform work within controls, provide feedback on adequacy of controls, and continue to improve safety management. The WSRC Integrated Procedures Management System (IPMS) is the primary mechanism for implementing the objective, principles and functions of the Safety Management System. This system establishes company-level, division-level, and program-specific procedures consistent with organizational roles and ensures a consistent, disciplined site wide approach to safety while performing work. The resource description, costs, and skill mix are defined in the following Sections: Costs D.2.2, Costs D.3, FTEs D.2.5, and FTES D.2.7 of the IPMS.

PBS Comments:

The Program Management function is to coordinate programmatic analysis of ER projects. This analysis assures that resources are applied to achieve the maximum risk reductions for funds expended.

Baseline Validation Narrative:

The Environmental Restoration (ER) Department was established in 1990 with the mission to clean up (remediate) the environmental damage incurred during past operations. Although the scope of cleanup was not clearly defined at that time, DOE, through its contractors, initially identified 420 waste units. In 1992, the ER Department defined and bounded this scope of work via the Federal Facilities Agreement (FFA), a legally binding agreement between the Department of Energy (DOE), the U.S. Environmental Protection Agency, and the State of South Carolina. However, ER and DOE management realized the need to continue refining the scope defined in the FFA. A tool to manage the work in terms of scope, schedule, and cost was also needed. This realization led to the development of Baseline 93 (BL93).

To accomplish the scope of work found in the approved FFA, the ER Department realized that the scope of work had to be more clearly defined. BL 93 was organized by scope, schedule, and cost in accordance with the EM-40 "Project Management Notebook".

The first baseline was prepared using the "Balanced Program Strategy". This strategy considered the needs and requirements of worker and public health and safety, environmental concerns (risk), regulatory compliance and funding considerations. A mixture of high-, medium-, and low-risk waste units was scheduled at the same time. This balanced approach would later be changed to schedule the higher-risk units prior to lower-risks units.

The cost estimates in this baseline were in FY93 dollars. Escalation (to accommodate rising costs) was applied beginning in FY95. Neither contingency nor management reserve were built in to the cost estimate at this time. The baseline time frame extended only to FY99 per DOE direction and did not account for the full Life Cycle Cost. In early 1994, an Independent Cost Estimating (ICE) team reviewed BL93 and verified the building blocks used in development of BL93 were accurate.

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Baseline 93 Highlights

- The parametric model template was developed for the SRS from a baselining model used at DOE Hanford. DOE approved this model.
- This first ER baseline used parametric modeling to estimate the cost of a project.
- The baseline reflected target values through FY99.
- The scope of work encompassed 420 waste units identified in the FFA, including the RCRA scope of work.
- Schedules were developed using legal drivers (i.e., settlement agreements, FFA and court orders).
- BL93 was endorsed by Savannah River Operations Office and EM-42 as a quality document.
- BL93 included data for FY93 to FY99 only per DOE direction.
- BL93 with the ICE comments included was utilized to request future funding.

In FY94, Congress required that DOE provide a Baseline Environmental Management Report (BEMR) with annual updates.

The ER Department used this request as an opportunity to update the FY93 baseline. This report used the Life Cycle Cost Estimate (LCCE) for the first time. The LCCEs were not fully complete at the first request of the BEMR so parametric modeling in conjunction with LCCEs were used to develop the cost estimates for BEMR 94. Using legal drivers, BEMR 94 schedules indicated the life cycle of the ER program (including surveillance and monitoring) would extend to FY2045.

This was the first SRS ER baseline that included a full life cycle cost schedule for FFA Appendix C waste units. An estimated cost, for assessment only, was applied to FFA Appendix G waste units that had not been characterized or estimated in BL93. The estimates to cleanup Appendix G waste units were not included to capture the total cost of the ER program because there was not enough information to make an educated guess.

In the absence of a formal future land use designation, BEMR 94 assumed a base case that closely followed industrial criteria for remediation of waste units. All budgets were in constant FY95 dollars. No contingency or escalation was applied.

BEMR 94 Highlights

- Estimates were taken from a combination of modeled LCCEs and parametric estimates.
- Schedules were developed from legal drivers (FFA). The end date for all ER activity was estimated to be FY2045.
- The number of waste units could increase due to new discoveries.
- An estimate was included to cover the assessment of Appendix G waste units; no remediation costs were included.

BEMR 96 was the next update required by congress. In this update, technology approaches that would lead to productivity improvements were assumed. Remediation of FFA Appendix G waste units were now included and was the major contributor to the increase in cost from BEMR 94 to BEMR 96. These costs were developed using a model that assumed past experience that would continue for future site evaluation activities and cost. It was also assumed that 25% of the waste units in the Site Evaluation (SE) Program would be classified as high-risk sites and move into the base program. This assumption later proved to be incorrect.

BEMR 96 Highlights

- Estimates were taken from modeled LCCEs.

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- Schedules were developed from legal drivers (FFA).
- With new waste unit discoveries, in addition to the split of existing waste units for tracking purposes, the scope of work was increased to 478 waste units.

Changing technologies and assumptions in land use demonstrated a need to further define the ERD scope of work, schedule, and cost. In April of 1996, ER issued the most inclusive baseline to date. The assumptions were clearly documented, with contingency derived from risk analysis and escalation applied in a logical manner (not straight-lined).

- BL96 used the information taken from LCCEs. These estimates were activity-based estimates with specific resources identified and applied to work scope.
- Schedules were then developed by applying regulatory drivers (i.e., FFA, primary agreements, other agreements and drivers).
- After further evaluation, some waste units were combined, dropping the population of waste units to 467.
- Although BEMR 96 included order of magnitude costs for remediation of waste units in Appendix G, they were not included in BL96. BL96 did not include any planning estimates.
- Schedules used the same regulatory drivers as BEMR 96.

In order to validate BL96, an ICE review was conducted.

The ICE team comments centered on the LCCEs. The cost delta between BL96 and BL96 ICE is primarily attributed to changes in scheduling and costs for program support. The agreed-to ICE comments significantly reduced the cost of this scope in the outyears. This review concluded with preparation of a baseline change package addendum to BL96 in April 1997. The ICE comments were incorporated into revised LCCE beginning in FY97.

A primary objective of the Ten Year Plan was to cleanup as many waste units as possible within ten years. The ER Program planned to complete remediation of the majority of high- and medium- risk waste units within ten years assuming regulatory flexibility with rescheduling of work and that funding would be available to support the work.

The concept of organizing work scope into areas (PBS) was first introduced in the Ten Year Plan. The SRS ER Program chose to utilize the natural occurrence of watersheds (areas) to summarize the projects. This PBS is a product of this WBS change.

Ten Year Plan Highlights

- Basis for the existing WBS configuration.
- Most high-risk units in cleanup by FY2006.
- 25% of Appendix G units were assumed to require further assessment and remediation.
- Scope of work was 467 sites.

The "Accelerating Cleanup: Paths to Closure" report was built on the concepts of the Ten Year Plan. Expanding on the area format, data requirements were further refined to produce an integrated management strategy for Environmental Restoration efforts across the DOE Complex. The ER program at SRS was also streamlining the regulatory process to accelerate remediation. One streamlining concept, the Plug-in Record of Decision (ROD) was

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also introduced. The Plug-in ROD is designed to reduce the time from characterization to actual remediation for sites with similar contamination where the same remediation technology is applied. Work scope was also re-evaluated to achieve maximum remediation results and cost reductions. Included in this update was the addition of the Integrator Operable Units (IOUs) that extended the schedule for cleanup after all the waste units in that area had been remediated.

Accelerated Cleanup: Paths to Closure Highlights

- Approved LCCEs were used to develop ACP Cost.
- Schedules were based on a new FFA, which reflected the cleanup of high-risk waste units first, followed by sites of lower risk.
- Scope of work was 477 waste units.

During FY97 and FY98, LCCEs were updated yearly to include the latest technologies used to clean up the waste units, which greatly increased the productivity of the ERD Program.

Incorporation of technological advances resulted in increased savings from BL96 though the scope increased since BL96, due to site evaluation units moving into the base program.

During FY98, ER's Technical baseline was reviewed by TetraTech EM, Inc. and in November 1998 validated with minimal recommendations. These recommendations are under review and are being incorporated in future revisions to the LCCEs.

Current Baseline Estimate Highlights

- Most comprehensive baseline
- Integration of Strategic Planning
- Environmental Risk Analyses and Assignment of waste units.
- Business Risk Analyses
- Baseline developed by consensus building by ERD, DOE, Regulators and the Public
- LCCEs reviewed and approved by DOE
- FFA is primary driver of program
- Changes from BL96 to current estimates reconciled
- Recognition of new technologies
- Again, some waste units were split apart and newly discovered, increasing the ER program scope to 477 waste units.
- The ER program completion date moved from FY2045 to FY2038.

During the last six years, ERD has undergone significant improvement in defining work scope and estimating the cost to complete this scope. LCCEs and schedules have evolved to definitive documents that will more accurately measure future changes in scope, schedule, and cost. A configuration control process is used to manage this baseline.

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General PBS Information

Project Validated? Yes **Date Validated:** 10/3/1996
Has Headquarters reviewed and approved project? No
Date Project was Added: 12/1/1997
Baseline Submission Date: 7/3/1999
FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y	N	N	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Cynthia V. Anderson
DOE Project Manager Phone Number: 803-725-3966
DOE Project Manager Fax Number: 803-725-7548
DOE Project Manager e-mail address: cynthia-v.anderson@srs.gov
Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	139,094	105,079	244,173	16,814	16,814	24,284	24,284	10,115	11,631	12,123	12,140	12,473	12,816	13,168	13,530
PBS Baseline (constant 1999 dollars)	128,854	68,873	197,727	16,814	16,814	24,284	24,284	10,115	11,227	11,295	11,014	11,018	11,024	11,029	11,034
PBS EM Baseline (current year dollars)	139,094	105,079	244,173	16,814	16,814	24,284	24,284	10,115	11,631	12,123	12,140	12,473	12,816	13,168	13,530

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Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS EM Baseline (constant 1999 dollars)	128,854	68,873	197,727	16,814	16,814	24,284	24,284	10,115	11,227	11,295	11,014	11,018	11,024	11,029	11,034	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	13,718	7,921	8,110	8,328	31,875	13,975	8,653	5,663	6,765	71	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	10,893	6,124	6,106	6,105	21,586	8,284	4,490	2,571	2,689	25	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	13,718	7,921	8,110	8,328	31,875	13,975	8,653	5,663	6,765	71	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	10,893	6,124	6,106	6,105	21,586	8,284	4,490	2,571	2,689	25	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	3.60%	3.60%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

Project Reconciliation

Project Completion Date Changes:

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Project Reconciliation

Previously Projected End Date of Project: 9/30/1938

Current Projected End Date of Project: 9/30/2040

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	228,371	Actual 1997 Cost:	16,814	Actual 1998 Cost:	24,284
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Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	187,273	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	5,056
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Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	192,329
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Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	32,609	Updated estimates and scope changes resulted in a net cost decrease.

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal:	159,720
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Additional Amount to Reconcile (+):	-3,091
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Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	156,629
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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Project Start	SR-ER07-001		10/1/1996								
Project End	SR-ER07-002		9/30/2040								

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Project Start	SR-ER07-001			Y							
Project End	SR-ER07-002				Y						